



UNITED STATES NAVY

MEDICAL NEWS LETTER

Rear Admiral Bartholomew W. Hogan MC USN - Surgeon General
 Captain Leslie B. Marshall MC USN (RET) - Editor

Vol. 29

Friday, 4 January 1957

No. 1

TABLE OF CONTENTS

Historical Fund of the Navy Medical Department	2
Current Problem of Staphylococcal Infections	3
Acne Vulgaris in Adolescents	6
Quinidine as a Cause of Sudden Death	9
Afibrinogenemia	11
Subcutaneous Phlebitis of the Chest Wall	13
Benign Osteopetrosis	14
Malignant Neoplasms	16
Transurethral Resection in Prostatic Carcinoma	17
Joint Paracentesis from the Anatomic Point of View	19
Uniformed Services Contingency Option Act Elections	20
Public Relations in the Profession of Dentistry	21
American Board of Obstetrics and Gynecology Examinations	21
Board Certifications	22
From the Note Book	23
Recent Research Projects	25
Dependents' Medical Care in Civilian Facilities (BuMed Inst. 6320.22) ..	27
Outservice Training for Enlisted HC Members (BuMed 1510.7A)	27

DENTAL SECTION

Rear Admiral in DC Reserve ... 28	Naval Dental Research	29
"Operation Build-Up"	28	Professional Science Symposium 29

MEDICAL RESERVE SECTION

Reserve Program Officer	30	New Reserve Training Command	31
Available Active Duty Billets	32		

PREVENTIVE MEDICINE SECTION

Congress on Industrial Health... 33	Foresight or Hindsight	34
Advance Training Course	33	Immersion Hypothermia
Fly Production in Privies	34	Rodent Control Study
Film on Insect Control	40	

HISTORICAL FUND
of the
NAVY MEDICAL DEPARTMENT

A committee has been formed with representation from the Medical Corps, Dental Corps, Medical Service Corps, Nurse Corps, and Hospital Corps for the purpose of creating a fund to be used for the collection and maintenance of items of historical interest to the Medical Department. Such items will include, but will not be limited to, portraits, memorials, etc., designed to perpetuate the memory of distinguished members of the Navy Medical Department. These memorials will be displayed in the Bureau of Medicine and Surgery and at the National Naval Medical Center. Medical Department officers, active and inactive, are invited to make small contributions to the fund. It is emphasized that all donations must be on a strictly voluntary basis. Funds received will be deposited in a Washington, D. C. bank to the credit of the Navy Medical Department Historical Fund, and will be expended only as approved by the Committee or its successor and for the objectives stated.

It is anticipated that an historical committee will be organized at each of our medical activities. If you desire to contribute, please do so through your local historical committee or send your check direct, payable to Navy Medical Department Historical Fund, and mail to:

Treasurer, N. M. D. Historical Fund
Bureau of Medicine and Surgery (Code 23)
Department of the Navy
Washington 25, D. C.

Committee

W. DANA, Rear Admiral (MC) USN, Chairman
R. W. MALONE, Rear Admiral (DC) USN
W. C. CALKINS, Captain (MSC) USN
W. L. JACKSON, Captain (NC) USN
T. J. HICKEY, Secretary-Treasurer

Policy

The U.S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be nor are they susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

* * * * *

Current Problem of Staphylococcal Infections

During the last decade, staphylococcal infections have become a problem of increasing concern. Most of the acute bacterial infections of man respond promptly and predictably to the antimicrobial agents now available. Nevertheless, infections due to staphylococci have remained a serious therapeutic problem. It is generally believed that the incidence of staphylococcal infection has increased since the introduction of antimicrobials, although only a few studies to document this impression have appeared in the literature.

Despite the apparent close biologic relationship between staphylococci and other gram-positive cocci which produce acute human infections, there is increasing evidence to suggest that staphylococci may differ from these microorganisms in fundamental humoral-cellular relationships within the animal or human host. Certain biologic properties of staphylococci may have a bearing on the pathogenicity and chronicity of staphylococcal infections. By the same token, recent experimental studies suggest that certain host mechanisms or changes in host resistance may serve to perpetuate staphylococcal infection or to convert the staphylococcal carrier state into active disease.

The clinical situations in which serious staphylococcal infections arise in 1956 differ in many important aspects from the clinical syndromes noted during the preantimicrobial period. There is abundant evidence to indicate that antimicrobial therapy has not been successful in dealing with a number of the serious staphylococcal infections seen in hospitalized patients today.

This article examines certain aspects of the staphylococcus-host relationship which may have bearing on the current therapeutic problem and reviews experience in the management of staphylococcal infections.

The adaptability of staphylococci is relatively unique among the microorganisms commonly producing disease in man. In contrast to most microbial

species, pathogenic *Staphylococcus aureus* strains have broader in vitro biochemical characteristics than their nonpathogenic *Staphylococcus albus* brethren. Strains of staphylococci which cause infection in man generally produce pigment, ferment a wide variety of sugars, and elaborate extracellular toxin and a number of enzymes and hemolysins. In in vitro situations, they can adapt to the most unfavorable of nutritional circumstances, rapidly acquiring the ability to synthesize their own amino acids from simple nitrogen containing salts. There is some evidence to suggest that strains of staphylococci are more heterogeneous than many other pathogenic microorganisms, each culture possessing individual mutants which may allow survival under a wide variety of circumstances.

Does the human host develop antistaphylococcal immunity? The striking differences in the type of disease produced by staphylococcal infection in the young and in adults would suggest that immunity does arise. Staphylococci are a common causative agent of primary bacterial pneumonia and tracheobronchitis in childhood, and the most frequent cause of empyema in infants. In contrast, staphylococcal pneumonia is a rarity in adults. Infants do not develop local abscesses with the same predictability as adults, but invasion of the blood stream is more common than in older age groups. Acute osteomyelitis is almost exclusively a disease of youth.

Despite this pattern, suggesting the development of progressive immunity, certain individuals have repeated attacks of boils due to a single strain of staphylococcus, unmodified in severity over the course of months or even years. Experimentally, it has been shown that no change in skin response results from the repeated spaced intracutaneous injection of a single strain of staphylococci.

Staphylococcal infections are not, in general, followed by a demonstrable antibody response. To date, satisfying and clear evidence of immune mechanisms operative in staphylococcal infections has not been demonstrated by classic immunologic methods, although there is excellent clinical evidence to support the belief that a degree of immunity is acquired during life.

Studies have been reported by Blowers in a chest surgery unit in England. Postoperative wound and intrathoracic infections due to penicillin-resistant staphylococci reached an incidence of 10.9%, forcing the temporary closure of the unit. With the establishment of precautions designed to reduce airborne spread of staphylococci, there was a concomitant decline in the incidence of infection to 3.9% and a sharp reduction in staphylococcal carrier rates among personnel.

The author's experience has been that the clinical problems in staphylococcal infection now fall into two rather distinct groups. Patients admitted from the community with acute deep-seated staphylococcal infections constitute the first and lesser group. The impression has been that such acute staphylococcal infections are less frequent than in the days before antimicrobials were available and the summary of experience presents this view in two figures. As might be expected from the significantly lower incidence

of resistant strains of staphylococci in nonhospitalized populations, the majority of these infections occurring in the community have been due to antimicrobial-sensitive strains of staphylococci.

The second group of patients with serious staphylococcal infections represents an increasing therapeutic problem. These are individuals with serious illness requiring hospital admission who receive numerous medical and surgical diagnostic and therapeutic procedures. Such individuals are generally in the older age group. In the majority of cases, serious staphylococcal infections arise in the hospital from obvious skin foci, open wounds, or instrumentation of the genitourinary tract under the umbrella of prophylactic antimicrobial therapy.

In certain measure, the incidence of serious staphylococcal infection appears to parallel the seriousness of the underlying illness. At Memorial Hospital, where inpatients are almost exclusively individuals with malignancy receiving extensive medical or surgical therapy, the incidence of staphylococcal bacteremias has been over five times that observed in the New York Hospital-Cornell University Medical College, despite a similar orientation toward problems of infection.

In patients admitted with acute deep-seated infections due to drug-susceptible staphylococci, aqueous penicillin has remained the drug of choice. Although increasing penicillin resistance of a single staphylococcal strain persistently isolated during therapy has been reported, the author has never seen it occur in the management of closed staphylococcal infections. In vitro studies on enterococci have suggested that the combination of penicillin and streptomycin possesses greater bactericidal activity than either drug alone. Consequently, these patients have generally received these two drugs in combination, using 6 to 12 million units of aqueous penicillin and 1 to 2 gm. of streptomycin or dihydrostreptomycin daily. Such infections generally respond well to antimicrobial therapy when other serious disease is not present. Nevertheless, occasional patients develop extensive necrotic lesions in the lung or kidney, particularly if effective therapy is delayed, which leads to chronic disease or death.

Occasionally, patients have been encountered with highly susceptible staphylococcal infections who have, nevertheless, failed to respond to what was considered appropriate antimicrobial therapy on the basis of in vitro susceptibility studies.

In individuals with other serious disease states who acquire staphylococcal infections within the hospital, antimicrobial therapy has been discouraging. The majority of these infections have been due to staphylococci manifesting high resistance to penicillin, streptomycin, and the tetracycline drugs. Many of these patients have impaired renal function, as stressed by Spink, which has narrowed the choice of possible antimicrobial agents. In this situation, therapy has become a complex problem, frequently unsolved by the use of antimicrobials alone.

The population group now developing staphylococcal infections is, in certain important ways, a different group from that acquiring staphylococcal infections during the period before antimicrobials were available. In general, these patients are individuals with advanced serious and potentially fatal disease who acquire staphylococcal infections within the hospital.

The increasing incidence of infection in this group due to strains of staphylococci unsusceptible to many antimicrobial agents constitutes a disturbing problem. Nevertheless, in a significant number of cases, it is difficult to assign therapeutic failures to drug resistance alone. The basic underlying disease upon which staphylococcal infection is superimposed is commonly the important factor in determining the outcome. In this era of antimicrobial coverage, the staphylococcus appears to have displaced the pneumococcus as the invader in terminal illness.

The healthy human host possesses a high degree of resistance to infections due to staphylococci. There are recent indications that the circumstances which lead to altered host resistance can be approached and defined experimentally.

It appears probable that staphylococcal infections, once initiated, will continue to cause the death of a number of seriously ill patients who now constitute a large part of the hospital populations. It is doubtful that new antimicrobials will alter this situation and there is much to suggest that antimicrobials have played a role in the emergence of staphylococci as a troublesome hospital problem. More information is needed about the factors which increase host susceptibility to staphylococcal infection. Procedures which will effectively reduce staphylococcal rates, and cross-inoculation of staphylococci within hospitals, also require better definition.

The therapy of established staphylococcal infections has received major emphasis in recent years. Methods which may prevent staphylococcal infections in altered abnormal hosts now merit equally serious investigation in the hope of reducing the hospital incidence of staphylococcal disease. (Rogers, D.E., The Current Problem of Staphylococcal Infections: *Ann. Int. Med.*, 45: 748-776, November 1956)

* * * * *

Acne Vulgaris in Adolescents

There is little that is new about acne or its treatment, but it is helpful to review what is known, to re-emphasize important points, and to consider not only the ailment itself, but also the kind of person who has it, his (or her) characteristics, and how these affect the illness and its management. This article comments upon matters related to acne and includes some cross-sectional data concerning its incidence and relationship to chronological age, skeletal age, and emotional status.

Acne is significant because it is very common and because of its impact on the patient's personality. However, the adolescent tends to reject any suggestion that there is anything wrong with his body and may not seek help; and some physicians, either pessimistic regarding their ability to modify the acne or thinking that it will disappear, give it and their patient too little attention.

Satisfactory management includes a knowledge of the patient's personality, as well as of the therapy of the disease itself. It is important to understand adolescents' embarrassment, how they feel about their bodies, why they may feel guilty, why they may need support. To treat them satisfactorily, it is as necessary to know them as it is to know their disease.

It is necessary to encompass the patient's total personality and to make him feel the interest in him. A few minutes spent inquiring about hobbies, school, social interests, and activities will help to establish the sort of relationship which will make it easier for him to discuss his ailment and his fears, and later to accept suggestions. The burden of adhering to treatment is put up to the patient, not to the parents. Constructive help is offered; the problem is never minimized or put off with a casual "You will grow out of it, forget it." Be factual in explanations, but not unduly pessimistic.

Data concerning the incidence of many ailments common in adolescence, particularly the minor ones, such as avulsion of the tibial tubercle, dysmenorrhea, plantar warts, or acne, need critical evaluation.

At puberty, there is a marked increase in the activity of the endocrine system. In response to higher testosterone levels in boys and progesterone levels in girls, the activity of the sebaceous glands increases. This results in hyperplasia of the sebaceous glands, oiliness of the skin, and hyperkeratinization at the orifices of the sebaceous glands. The keratin plugs act as foreign bodies and cause both retention of sebum proximal to the orifices and pressure atrophy of the lining cells of the follicle. The inflammatory changes which accompany this foreign body reaction render the cells of the follicle and the sebaceous apparatus susceptible to bacterial invasion. Sebum formation is greatest where sebaceous glands are most plentiful. Consequently, acne is more likely to be widespread on the forehead and back than on the extremities, and can be expected to increase when androgen production (which increases the number, size, and secretion of the sebaceous glands) is raised.

Inflammatory changes at the follicular orifices may also result from such agents as cutting oils, animal furs, or from the ingestion of halogens, iodides, and bromides. Excessive sweating and accompanying friction may macerate the skin and cause retention of sebum. Pyoderma results when the skin's normal bacterial flora becomes pathogenic. It is most likely to occur or to become excessively severe in those individuals whose family history or whose own history indicates a hypersensitivity to staphylococcal infection. Focal bacterial infection in other organs, or in areas other than

the skin may affect the development of acne. Factors, such as fatigue or emotional tension or such disturbances as anemia, may increase the severity of acne.

Mild cases of acne in adolescence consist primarily of oiliness of the skin of the face, chest, and back with numerous comedones and discrete papules. Many patients have a concomitant seborrhea of the scalp. In more severe acne there are pustules in various phases of evolution, confluent papules, and scarring. The most severe type of acne presents cysts, either of the discrete nodular type, or of burrowing, "ropelike" lesions. In these patients, scarring is an important feature.

Therapy should be instituted as soon as possible because it is impossible to predict whether the acne will subsequently be accompanied by scarring. Mild acne may be improved by such simple therapeutic measures as frequent and conscientious use of soap and water, careful expression of comedones and local application of sulfur lotions. Any mild, neutral soap will suffice for cleaning, but it should be remembered that one of its chief purposes is the removal of excessive oiliness and gentle washing of the face should be carried out a sufficient number of times daily to produce this effect. Sulfur alone in varying strengths (such as zinc sulfate 4.0, potassium sulfuret 4.0, distilled water q. s. 120.0, applied morning and night) or in combination (such as precipitated sulfur 3.0, resorcinol 3.0, glycerin 4.0, zinc oxide 6.0, alcohol and water aa q. s. 120.0) will be helpful. Vleminckx's solution sulfurated lime diluted (1 to 10 parts of water) may be used as hot compresses for five minutes before retiring. This helps to remove comedones and also exerts an antiseborrheic effect. No oily ointments should be used, but if an ointment is indicated, precipitated sulfur 3.0, resorcinol 3.0, kaolin 6.0, zinc oxide ointment q. s. 60.0 may be used. When sulfur preparations prove too irritating or drying, then their use should be restricted to one application daily or once every other day.

Accompanying seborrhea of the scalp may be treated with selenium sulfide or with 3% salicylic acid and 3% precipitated sulfur in petrolatum. Shampooing with sulfonated detergents is preferred; preparations for keeping the hair in place which contain oil should be avoided.

Physical aids employed locally include ultraviolet therapy in suberythema doses given once or twice weekly. X-ray may be given once weekly to each area, over a period of 8 to 12 weeks in a dose not to exceed 60 r at each treatment and should be administered by a qualified dermatologist or roentgenologist.

Trauma in any form, face picking, squeezing, or rubbing as with a complexion brush, should be avoided.

In more severe cases, especially those with pyoderma, an attempt to control the infection by the systemic use of tetracycline or oxytetracycline in oral dosages ranging from 250 to 1000 mg. daily is justified. These drugs should not be continued more than 10 days, although repeated courses may be

necessary to control recurrences. Antibiotics applied locally have given inconsistent results and are not recommended. Vaccine therapy with staphylococcus vaccines is occasionally helpful.

If the patient's history suggests that any of the following foods are factors, they should be eliminated from the diet: chocolate, nuts, seafood, coffee, pork, candies, fried foods, and any others which the patient believes to be deleterious. It is to be remembered, however, that foods are neither a consistent nor a major factor in this ailment.

It is important to regulate hygiene and insist on a planned program of adequate exercise. Focal infection should be remedied by appropriate means.

Various techniques, such as sandpapering or surgical planing, have been devised to treat scarring. The possibility that granuloma may result and the fact that an improvement in the skin's appearance will not necessarily better a maladjusted patient's outlook on life (it may even make it worse) should make one hesitant to recommend dermabrasion. It should never be used when acne is active, and is a procedure best left to an expert. Those whose experience is greatest are most likely to reject more applicants than they accept. (Masland, R. P., et al., Some Comments on Acne Vulgaris in Adolescents: J. Pediat., 49: 680-684, December 1956)

* * * * *

Quinidine as a Cause of Sudden Death

Sudden death and embolism have long been feared as major hazards of quinidine in the treatment of atrial fibrillation. Isolated reports of untoward reactions began to appear shortly after the introduction of the drug by Frey in 1917. Viko, Marvin, and White, in 1923, compiled the first sizable group of cases dealing with this problem. In 1929, on the basis of 554 cases, Parkinson and Campbell reported a 4% incidence of sudden death. This latter figure has been generally accepted as the standard risk. In contrast to the emphasis placed on embolism in the earlier report, they noted that "hardly any of these deaths were proved due to emboli, and in most of them, necropsy showed no obvious structural disease to account for it (death)." The most recent statistical data were presented by Askey in 1946. He reported on 839 cases, segregated into patients with and without congestive heart failure. Of 275 patients in failure, the incidence of death during treatment with quinidine was 4.0%; in 564 cases not in failure, the incidence was 1.8%. Although no such separation was made in the preceding reports, congestive heart failure was believed to play an adverse role. More recent authors have suggested that the hazards of embolism have been overemphasized, and that sudden death—although a possibility—is rare. In the face of these conflicting data and impressions, it was believed that a review of more recent experiences was in order.

It is apparent that the risk of sudden death from quinidine is real, and in some cases, it is not susceptible to pathologic explanation. No final conclusions regarding the cause of sudden death can be made because of the limitations of the reported necropsy material. The available data favor some reason other than embolism. Certainly, several known factors are operative. The nature and severity of the underlying heart disease, of associated serious illness, such as lobar pneumonia, uremia, and recent severe hemorrhage, and senile debility appear on occasion to affect the result. Of most concern, however, is the occurrence of sudden death in the relatively well patient. It may be possible to reduce the number of such catastrophies.

An analytic approach to the problem suggests that uncontrolled dosage may be a significant lethal factor. It is widely recognized that idiosyncrasies, manifest by profound circulatory collapse leading sometimes to a fatal outcome, do occur on small doses of the drug and at low plasma levels. Because dosage is not sharply defined, the total dose and the time over which it is given reflect, among other things, the prevailing local conceptions of the drug's mode of action and toxicity and the evaluation of the clinical situation. But most important of all, appears to be the care exercised in the control of dosage which amounts to the frequency with which observations of one or another type are made on the patient while he is receiving large doses of the drug. A table indicates that the mortality may be greater where no limits on the amount of the drug are set.

The occurrence of serious ventricular arrhythmias during quinidine therapy has been well documented. Ventricular tachycardia and fibrillation appear to have been noted with greater frequency than cardiac standstill, although the latter has been recognized electrocardiographically as a terminal event on occasions when quinidine has been given intravenously to control ventricular tachycardia. Coma, convulsions, and altered states of consciousness described during the course of aberrant ventricular rhythms are undoubtedly related to the failure to maintain an adequate cardiac output and adequate cerebral blood flow. Seven such fatal reactions were reported following intravenous administration of the drug, and conduction defects, such as complete bundle-branch block, appear to add to the hazards. Similarly, ventricular tachycardia has been reported to occur with the use of quinidine in atrial fibrillation associated with complete atrioventricular dissociation.

Also, pertinent to the problem, is the reported occurrence of events similar in nature to idiosyncratic reactions to the drug which may become manifest only with high plasma quinidine levels or large or frequent doses of the drug. A generally unappreciated phenomenon is the apparent effect of quinidine as an excitant and at times depressant of the vital centers of the central nervous system. Kalmonsohn lists precipitant hypotension as the chief contraindication for continued use of the drug because it frequently heralds the onset of circulatory collapse.

The separate risks of sudden death and embolism during therapy with quinidine are appreciable. In 611 recently reported cases (1947-1954) the over all death rate was 3.3%. In 418 of these patients, the incidence of clinical embolism was 2.3%. Death due clinically to certain cerebral embolism occurred in only 2 cases. In 10 fatalities studied at necropsy, embolism was implicated only once. In the majority, no pathologically evident cause of death could be found. Nearly half of the total deaths occurred in patients with rheumatic heart disease and mitral stenosis. Prior embolism appears to carry a negligible risk of repetition during quinidine treatment. Where no arbitrary dosage limit is set, the mortality appears greater. Severe organic heart disease, congestive heart failure, and associated grave illnesses increase the possibility of a fatal reaction.

Unappreciated toxic effects of the drug, especially on the central nervous system, appear to play a role in the production of sudden death ("quinidine shock"). It is suggested that these effects might be avoided by a more judicious selection of patients for therapy and meticulous supervision of all patients receiving large doses. (Thomson, G. W., Quinidine as a Cause of Sudden Death: *Circulation*, XIV: 757-763, November 1956)

* * * * *

Afibrinogenemia

Severe uncontrollable hemorrhage associated with a failure of the blood to clot is a potentially disastrous complication of pregnancy. This article presents a review of the opinions obtained, as reported through December 1955, and also presents three of the five cases in private practice during a 12-month period.

It is well recognized that the physiologic role of fibrin is to form clots and arrest hemorrhage at local sites of trauma. Defibrination of circulating blood is generally considered pathologic. The failure of blood to clot in certain obstetrical conditions is due to a depletion of the blood fibrinogen. This is of great clinical significance inasmuch as the hemorrhage from afibrinogenemia is amenable to the specific treatment of replacing the fibrinogen.

Acquired afibrinogenemia, hypofibrinogenemia, or fibrogenopenia with its resultant hemorrhagic diathesis have been reported as occurring in at least three or more situations in pregnancy. These include: (1) severe premature separation of the placenta (abruptio placentae); (2) amniotic fluid infusion or embolism; (3) long-standing retention of a dead fetus in utero; (4) convulsive eclampsia; (5) postpartum hemorrhage; (6) surgical trauma.

Other conditions which are probably associated with defibrination are bilateral renal cortical necrosis, pituitary necrosis, trauma forceps delivery, hydatiform mole, and incompatible blood transfusions.

The most significant hematologic change which occurs in these patients is a defibrination of the blood. Schneider's theory and demonstration of this pathologic process as it occurs in abruptio placentae are well known.

The cases have proved that several definite facts are known and that certain standard procedures are warranted in all hospitals for the proper diagnosis and handling of such a condition.

As defibrination occurs and increases, the platelets are reduced by lytic action. Defibrination may occur without lysis. Prolonged labor, infection, and other states will produce lysis. Afibrinogenemia and lower nephron nephrosis, while two separate and distinct entities, appear to have at times a common pathogenesis. Page states that the renal-cortical syndrome is the cause of one-third of all the deaths. Decreased fibrinogen and lytic activity together are serious conditions. It is not actually a bilateral cortical syndrome, but rather an acute tubular necrosis and caused mainly by shock.

In 2 of 3 cases, there was preeclampsia along with the abruptio placentae and afibrinogenemia. The autopsy findings in the kidney of the patient who died showed extensive epithelial damage in the tubules which is in agreement with Page's findings. The autopsy on the first patient showed little or no hemorrhage into the uterus. This substantiates the conclusion of observers in this field that hysterectomy in such cases is not indicated. Removal of the uterus simply shifts the site of bleeding to other areas. Two of these patients had transfusion reactions. One of them, who did not have toxemia, showed blood and casts in the urine postoperatively. These patients had a derangement of the clotting mechanism of the blood; it was corrected and the blood volume replaced. Apparently, they are more vulnerable to anaphylactoid reactions than usual. Therefore, it is suggested that if the patient is doing well with a hemoglobin of 8 gm. she should be given iron and the hemoglobin built up slowly.

A fibrinogen index should be obtained routinely in all cases of premature separation of the placenta. It should be remembered that afibrinogenemia may also occur as a result of amniotic fluid infusion and in instances of long-standing fetal death. The easiest, best, and most used test is the clot retraction time determination. This should be followed by a quantitative test. Ten gm. of fibrinogen should be maintained in the hospital at all times. Afibrinogenemia should be corrected preoperatively and blood volume replaced with fresh blood. Usually, 1 gm. of fibrinogen is needed for every pint of blood (averaging approximately 5 to 6 gm. in treatment). If the case is a missed abortion and the fetus is still present, giving fibrinogen is a waste of the fibrinogen. Some authors have recently been using Apresoline because it relieves spasm of the afferent arterioles and does not affect hypotension already present. They even advocate giving it as routine medication in all acute cases. Blutene is reported as having good antilytic action. It stops lysis; but, remember it is of no value in preventing defibrination.

Patients with premature separation of the placenta should be promptly delivered by the route indicated by the usual obstetric criteria. The use of

Pitocin to stimulate labor in such instances may well be questioned if prompt and easy delivery is not anticipated. Its use may precipitate or increase the severity of afibrinogenemia or lower nephron nephrosis. (Murphy, C. J. Jr., Picot, H., Thompson, H. G., Afibrinogenemia: Am. J. Obst. & Gynec., 72: 1197-1204, December 1956)

* * * * *

Subcutaneous Phlebitis of the Chest Wall

Within the past two decades, a series of reports has appeared in the medical literature—particularly in the French literature—describing a clinical entity known eponymically as Mondor's disease. This appellation derives from the report of Henri Mondor who, in 1939, described a series of 4 cases of subcutaneous "angitis" which are now known to be due to phlebitis.

The lesion, completely benign of itself, assumes greater clinical significance by virtue of its location in or near the breast where it enters into consideration of the possible diagnosis of carcinoma.

After attention had been drawn to its existence, clinicians began to recognize the syndrome of subcutaneous thrombophlebitis of the chest wall with increasing frequency, and the earlier isolated case reports have been superseded by studies of small series, such as the present report of 7 cases observed within a period of 3 years, and more strikingly by Farrow's publication from the Memorial Hospital of New York where 43 cases were encountered in an 8-year period. The lesion is so characteristic in appearance and so uniformly benign that Farrow resorted to biopsy in only 5 of his entire series of 43 cases, while the authors did not require biopsy in any of their cases.

Characteristically, the lesion presents as a slightly tender subcutaneous cord producing either a groove-like indentation of the overlying skin or a raised strand, particularly in the submammary region where it can be brought into sharp relief by elevation of the breast. A bowstring ridge crossing the submammary sulcus is then easily seen. Most commonly, it is approximately 15 to 25 cm. in length and 3 to 4 mm. in diameter. It has been compared in consistency to a ureteral catheter or to a vas deferens. The cord may be forked, it may be beaded, double, or triple.

The veins most commonly involved are situated on the anterolateral aspect of the upper portion of the breast or in the region extending from the lower portion of the breast across the submammary fold toward the costal margin and epigastrium. Occasionally, the involved vein courses inferolaterally toward the anterior superior iliac spine.

There has been considerable speculation as to the etiology of this syndrome which often appears without any precipitating incident, coming to the patient's attention as a slightly tender strand best noted on elevation of the upper extremities. At times, it may produce actual dyspnea when associated with severe inspiratory pain. More commonly, the thrombophlebitis

has been noted to follow local surgical procedures, such as a breast biopsy or drainage of a local infection.

The condition occurs in both sexes, although females seem more susceptible. The overwhelming predominance of female patients in both the author's and Farrow's series is not characteristic of the entire reported experience. The disease appears to occur most frequently in young and middle-aged adults, although Pascalidés reports an instance in an 8-year old boy. Both right and left sides appear to be involved with equal frequency. The process is uniformly self-limiting and usually subsides in a few weeks or months, although an indurated cord may persist for one or two years as in two of the author's cases and in one reported by Ferron and Sénéchal.

No effective type of treatment has been observed nor does any appear to be required in view of the self-limiting nature of the disease. Antibiotics and anticoagulants have been used at various times, but without demonstrable benefit. Biopsy should be limited only to those cases in which a serious question of diagnosis exists. The prognosis is uniformly benign and no deaths or recurrences have been reported. (Kaufmann, P.A., Subcutaneous Phlebitis of the Breast and Chest Wall: *Ann. Surg.*, 144: 847-852, November 1956)

* * * * *

Benign Osteopetrosis

Osteopetrosis is an uncommon disease of unknown etiology. Some of the appellations given to this disease are Albers-Schönberg disease, marble bone disease, chalky bone disease, and osteosclerosis fragilis generalisata. Karshner designated the entity as osteopetrosis in 1926, and this is the term most widely used. Osteopetrosis, better known in infants and children because of its more frequent occurrence in this age group, usually follows a malignant course with fatal termination, according to Pugh. However, the disease has been reported in youngsters and adults where it was encountered coincidentally during roentgen examination for some other condition. In this group, the disease is often asymptomatic and assumes a "benign" form. This report is confined to the latter category.

The incidence of the disease is relatively rare, showing no racial or sex preference. It has been found in all age groups, having been reported in utero and in elderly individuals.

The etiology of osteopetrosis is unknown, but several possibilities have been suggested. A hereditary factor has been shown in some of the cases because several members of the same family possessed the disease. The disease may be detected at birth, or the bones may appear normal at birth with evidence of osteosclerosis appearing later in life. The roentgen findings vary with the severity and extent of the disease. The following are the most common pathologic changes seen.

The long bones show a homogeneous chalky density with a lack of differentiation between the cortex and the medullary cavity. Transverse and longitudinal striations at the metaphysial ends of the bones are frequently noted. Also, at the metaphysial ends, clubbing is observed with a loss of modeling. The nutrient foramina are either narrowed or obliterated; this is particularly evident in the long bones. Coxa vara and genu valgum deformities often exist.

The bones of the skull, when involved, demonstrate a similar homogeneous pottery type of density with loss of the diploic spaces between the tables of the skull. There is no apparent increase, however, in the over all dimensions of the skull. Thickening of the base of the skull is prominent with encroachment upon the cranial nerve foramina. If involvement of the facial bones occurs, the paranasal sinuses appear narrowed or partially effaced.

The iliac bones of the pelvis show alternating dense and translucent zones parallel to the iliac crests resembling growth rings in a tree. At times, these curvilinear stripings are not present, but instead, the chalky somewhat homogeneous type of sclerosis exists.

Changes occur in the vertebrae which are quite striking in appearance. The upper and lower portions of a body show plate-like condensations with a translucent zone bisecting the body horizontally. A wedge-shaped area of diminished density is seen in the center of the translucent zone which resembles a neonatal vertebral body and is termed an "insert." The appearance of the entire vertebra is believed to be due to a persistence of infantile characteristics (vascular channels and intersegmental fissure). In the more advanced cases and in older patients, the vertebrae may be involved with a uniform chalky sclerosis similar in appearance to that observed in the long bones. The ribs may show the "marbleized" process as well as an appearance of widening.

The carpal and tarsal bones exhibit rather unusual concentric rings of dense and clear bone. Brailsford believes this finding occurs when the bones which are normal at birth later have periods of osteosclerosis followed by intervals of remissions and growth.

In establishing the diagnosis of the benign type of osteopetrosis, several other conditions must be ruled out. These are Paget's disease of bone (osteitis deformans), fluorosis of bone (fluorine intoxication), metastatic bone lesions, osteomyelofibrosis associated with anemia or leukemia, Garre's sclerosing osteomyelitis, chronic osteomyelitis, syphilitic osteoperiostitis, hyperparathyroidism, tuberous sclerosis, leontiasis ossea, and melorrhoeostosis. Pertinent differential points in each entity are briefly mentioned.

Benign osteopetrosis is a bone condition compatible with reasonably normal living and may be asymptomatic or mildly symptomatic. The clinical and roentgenographic manifestations are presented and the differentiation from other resembling entities is made. Nine cases are reported. (Piatt, A.D., Erhard, G.A., Araj, J.S., Benign Osteopetrosis - Report of 9 Cases: Am. J. Roentgenol., 76: 1119-1130, December 1956)

Malignant Neoplasms

Malignant neoplastic conditions rank second only to coronary ailments as a cause of death from disease in the Navy and Marine Corps. The malignant neoplasm deaths represented almost one-fourth of all fatalities attributed to disease causes during 1955 and accounted for a death rate of 7 per 100,000 average strength. While deaths from malignancies are comparatively few in number when related to the population at risk, the case-fatality rate was 15 per 100 cases diagnosed. That is, about 1 patient out of each 7 with a malignant neoplasm died while on active duty in the Navy or Marine Corps. There were, in addition, 159 patients invalided from the service during 1955 because of cancerous lesions. Thus, permanent losses to the naval service due to malignancies constituted more than one-half of the incidence of cancer during the year. In general, an individual is medically separated when it becomes apparent that he is suffering from a condition which renders him unfit for further useful service. Undoubtedly, many of the cancer cases had a fatal termination sometime after the patient left the service. It is also possible that patients with a malignancy who at first returned to duty may, at a later date, have had a recurrence of the condition which resulted in death while on active duty. No follow-up study, however, was attempted—thus, the data shown in the article do not represent the total mortality picture for malignancies treated among active-duty personnel.

During each year of the period 1950 through 1955, the several morbidity indices relating to neoplastic conditions among personnel in the naval forces remained practically the same—the range for incidence rates being from 46 to 48 per 100,000, while invalidings and deaths combined amounted to around 40% of the new cases taken up. Average duration of hospitalization was in the neighborhood of 85 days per case.

Included in the diagnostic title "Malignant neoplastic conditions" are malignant tumors and neoplastic conditions involving the lymphoid and hematopoietic tissues. Malignant tumors accounted for almost 85 out of each 100 of the cancer cases and 64% of the deaths.

While malignancies of the buccal cavity and pharynx were the most prevalent site during the 1950 - 1955 period (15% of the cases), there was only 1 death recorded for every 95 cases diagnosed. Skin cancers, the next most frequently reported, with 358 cases—some 14% of the total—accounted for 11 deaths during this period. Cancers of the respiratory system and of the digestive organs and peritoneum had the highest ratio of fatalities—1 for each 4 cases and 1 for each 3 cases reported, respectively.

More than one-third of the cancers of the respiratory system were in the lung and bronchus (76) and during this period (1950 - 1955) 69 were either invalided from the service or died while on active duty. There was only minor variation in rates from year to year, the range being from 1.0 per 100,000 (1952) to 1.9 (1953).

Two ailments—Hodgkin's disease and leukemia—accounted for almost three-fourths of the neoplastic conditions of lymphoid and hematopoietic tissues. In each year, beginning with 1950, there were around 3 cases of Hodgkin's disease diagnosed in every 100,000 of the average strength. The rate per 100,000 for the leukemias ranged from 1.0 (1955) to a high of 3.7 (1950). Only 8 cases of mycosis fungoides were reported among Navy and Marine Corps personnel in the 1950 - 1955 period, and none died nor were separated for disability.

The manpower-loss rate for malignancies involving the lymphoid and hematopoietic tissues is extremely high. In the 1950 - 1955 period, about 92 out of each 100 of these cases were either invalidated or had a fatal termination. More than half of the patients with leukemia (64%) and sarcoma (51%) died while on active duty. While only 13 of 170 patients with Hodgkin's disease died, there were 152 invalidated.

The distribution of the malignancies indicates wide variation in site and type of the neoplasm between the male and female. When related to strength during the 1950 - 1955 period, women have over twice as many malignancies as men. As expected, the greatest difference was in the incidence for breast cancer. Malignancies in the genitourinary organs also occurred with considerably greater frequency among women, 18 per 100,000 average strength as compared with 6 per 100,000 for men. In contrast, the rates for malignant neoplasms in the respiratory system were higher among men than among women of the naval forces. (Statistics of Navy Medicine, Malignant Neoplasms - 1950-55, 12: 3-6, December 1956)

* * * * *

Transurethral Resection in Prostatic Carcinoma

The most satisfactory method of relieving bladder neck obstruction due to carcinoma of the prostate gland has been transurethral resection, since this lesion does not lend itself to open enucleative procedures whether suprapubic, perineal, or retropubic, because of the diffuse involvement by malignant tissue which infiltrates the bladder neck and allows no easily definable anatomic plane of cleavage essential for satisfactory enucleation.

Nevertheless, a critical evaluation might suggest to the urological surgeon that this operative procedure would appear to contravene some of the most fundamental principles governing good cancer surgery. Here is an operation which requires bold cutting into malignant tissue, opening blood vessels and lymphatics and then forcing irrigating fluid under some pressure into the prostatic urethra as if better to disseminate cancer cells into the circulation. At the same time, some inevitable manipulation of the resectoscope appears to massage the neoplasm further—this with the prostatic vessels open.

It has been adequately shown that a substantial amount of irrigating fluid may be introduced directly into the circulation through the open prostatic veins during the performance of transurethral resection.

From these observations, it would seem not unlikely that widespread dissemination of cancer cells may occur during transurethral resection, and yet in clinical practice one observes that most patients do not go rapidly downhill from widespread carcinomatosis following transurethral resection, although an occasional patient does do so.

Although this operation is not designed to cure prostatic cancer, but simply to re-establish normal micturition and prevent hydronephrosis due to bladder neck obstruction, a surprisingly high percentage of patients, 43 to 46%, with prostatic carcinoma too extensive for hope of cure by radical prostatectomy, but not showing bone metastases, will survive 5 years or more if treated by bilateral orchiectomy and stilbestrol and if the bladder neck obstruction is relieved by transurethral resection.

The records of a consecutive group of patients with late carcinoma, too advanced for cure by radical prostatectomy, were studied. All patients had unequivocal evidence of prostatic carcinoma and all were treated by bilateral orchiectomy and stilbestrol, usually 5 mg. daily. The group was clinically controlled in the sense that all of these patients, although harboring locally extensive carcinoma, were shown to satisfy three clinical criteria as follows: (1) normal serum acid phosphatase, less than 3.1 Gutman Units, (2) no demonstrable bone metastases, and (3) no evidence of hydronephrosis by pyelography.

All patients were followed 5 years or longer.

Forty-four patients satisfied these criteria. Seven of these patients died of unassociated disease before the fifth year. Of the remaining 37 patients, 22, or 59.4%, survived 5 years or longer. Fifteen patients, or 40.6% of the group, died of carcinoma of the prostate before the fifth year. The incidence of transurethral resection was studied in these two groups.

Among the 22 five-year survivors, transurethral resection was performed 27 times. Among the 15 nonsurvivors, transurethral resection was performed 15 times. In the entire series of 37 patients, 26 patients had one or more transurethral resections and 11 patients had no transurethral resection. Among the 11 patients without transurethral resection, there were 5 five-year survivors, a percentage of 45.4.

Among the 26 patients with one or more transurethral resections, there were 17 five-year survivors, a percentage of 65.4. Three of the five-year survivors had 3 transurethral resections each and 4 had 2 transurethral resections each.

Because it may seem that this series is too small to allow any significant conclusions, a study of the incidence of transurethral resection in a consecutive group of patients with late prostatic carcinoma treated by orchiectomy and stilbestrol, plus transurethral resection when indicated

for the relief of bladder neck obstruction, was carried out. All patients had advanced prostatic carcinoma too extensive for radical prostatectomy, but were free of demonstrable bone metastases when first seen or treated. The records of 48 consecutive five-year survivors and 48 consecutive non-survivors (all of whom died of prostatic carcinoma before the fifth year) were reviewed.

Among the 48 five-year survivors, 37 patients had had transurethral resection. Among the 48 nonsurvivors, 33 patients had had transurethral resection.

In the entire group of 96 patients, 70 patients had one or more transurethral resections and 26 patients had no transurethral resection. Among the 26 patients who had no transurethral resection, there were 11 five-year survivors, a percentage of 42. Among the 70 patients who had transurethral resection, there were 37 five-year survivors, a percentage of 53.

Although transurethral resection of the obstructing malignant prostate presents some theoretical objections from the standpoint of the general surgical principles governing the prevention of operative spread of cancer cells, it cannot be shown that this operation has an adverse influence on five-year survival in a clinically controlled series of patients with advanced prostatic carcinoma under anti-androgenic control with orchiectomy and estrogens.

If widespread dissemination of cancer cells occurs, it must be assumed that the cells fall on relatively infertile soil and fail to develop rapidly into clinically demonstrable metastases, possibly in part, because of the modification of the internal environment produced by orchiectomy and estrogen therapy. (Ganem, E. J., The Influence of Transurethral Resection on Survival in Advanced Prostatic Carcinoma: Surgery, 40: 1081-1084, December 1956)

* * * * *

Joint Paracentesis from the Anatomic Point of View

A study of the anatomy of joints as applied to paracentesis resulted in the enumeration of the following principles for selecting sites: (1) the selection of sites removed from large vessels, nerves, or tendons; (2) the use of bony landmarks; (3) the use of positioning to aid in palpation; (4) the use of distraction and positioning to enlarge the target area; (5) the use of positioning to stretch the capsule; (6) avoidance of scoring articular cartilages.

Using these principles as criteria, the following sites were selected for joint paracentesis:

1. For the subacromial bursa: a lateral approach inferior to the anterior tip of the acromion with the arm distracted.
2. For the shoulder joint: a posterior approach one fingerbreadth below the angle of the acromion, with the arm medially rotated.

3. For the elbow joint: a posterolateral approach proximal to the head of the radius with the elbow flexed.

4. For the region of the lateral epicondyle: a lateral approach with the elbow flexed.

5. For the radiocarpal joint: a dorsal approach in the space just distal to Lister's tubercle between the extensor digitorum communis and extensor carpi radialis brevis tendons, with the wrist flexed and ulnar deviated.

6. For the intercarpal joints: a dorsal approach radial to the common extensor tendons and distal to the lunate with the wrist flexed and ulnar deviated.

7. For the first carpometacarpal joint: an anterolateral approach with the thumb strongly adducted.

8. For the fifth carpometacarpal joint: a medial approach between extensor carpi ulnaris and abductor digiti quinti.

9. For the metacarpophalangeal joints: a dorsal approach on either the radial or ulnar side of the extensor tendon aided by flexion and distraction.

10. For the interphalangeal joints: the same approach as for the metacarpophalangeal joints.

(Miller, J. A. Jr., Ph.D., Joint Paracentesis from an Anatomic Point of View - I. Shoulder, Elbow, Wrist, and Hand: Surgery, 40: 1005-1006, December 1956)

* * * * *

Reminder to Medical and Dental Officers Regarding Uniformed
Services Contingency Option Act Elections

Under the provisions of AlNav 16 which authorized constructive service credit for medical and dental school and medical internships, certain medical and dental corps officers are required to make an election under the Uniformed Services Contingency Option Act prior to 2 May 1957.

Action is required by those officers who had not completed 18 years creditable service for pay purposes on 30 April 1956, but now, as a result of this constructive service, are credited with more than 17 years service.

The Uniformed Services Contingency Option Act of 1953 granted to personnel of the uniformed services the opportunity to share retirement compensation with their surviving dependents. BuPers Instruction 1750.1B applies.
(PersDiv, BuMed)

* * * * *

Public Relations in the Profession of Dentistry

Public relations applied to dentistry is "a pattern of living designed to gain public confidence, respect, and good will." Public relations can be practiced in the home, the office, the community, and in the dental society. Dentists should not speak about their patients in the home, at a party, or at a club. The graciousness with which the dentist accepts the responsibility of giving emergency treatment at inopportune times—birthday, holiday, anniversary, or the middle of the night—can yield large dividends in patient appreciation. In his office, the dentist must not place economic self-interest above service to his patients. Patients who receive the impression that the professional man is more interested in the fee than in the service would be wise to choose another dentist; and a dentist so committed would be wise to choose another vocation. For a dentist to try to discredit previous dental service done to a patient is particularly bad public relations for it shakes the patient's confidence in the previous dentist, in the profession of dentistry, and likely in the dentist of most recent choice. (Eshleman, J.H., West Virginia D.J., 29: 195-197, October 1955) (DentDiv, BuMed)

* * * * *

American Board of Obstetrics and Gynecology

The next scheduled examinations (Part I), written, for all candidates will be held in various cities of the United States, Canada, and military centers outside the Continental United States on February 1, 1957.

Candidates must submit case reports to the office of the Secretary within thirty days of being notified of their eligibility to Part I. Cases must be prepared in the manner described in the Bulletin of the Board and submitted with a duplicate index list.

Requests for re-examination in Part II must be received prior to February 1, 1957.

Current Bulletins outlining present requirements may be obtained from:

Robert L. Faulkner, M.D.
Secretary
American Board of Obstetrics and
Gynecology
2105 Adelbert Road
Cleveland 6, Ohio

* * * * *

Board CertificationsAmerican Board of Anesthesiology

LT Donald R. Buechel MC USN
LT Brendan J. Daly MC USNR (Active)
LCDR Joseph Turbin MC USNR (Active)

American Board of Dermatology and Syphilology

LCDR Harold K. Alsabrook MC USN
Captain Edward G. Hurlburt MC USN

American Board of Internal Medicine

CDR John J. Donnell MC USNR (Active)

American Board of Ophthalmology

LCDR Wayne L. Erdbrink MC USN
Captain Walter Patterson MC USN

American Board of Otolaryngology

CDR Robert L. King, Jr., MC USN
LT Bentley A. Nelson MC USN

American Board of Pediatrics

LT Jose L. Gonzalez MC USNR (Active)
LT Arnold L. Tanis MC USNR (Active)

American Board of Preventive Medicine

Founders Group in Occupational Medicine
Captain Howard K. Sessions MC USN

American Board of Radiology

CDR Walter F. Hansen MC USN

American Board of Surgery

Captain James D. King MC USN (Thoracic)

FellowshipsAmerican College of Physicians

CDR Kenneth P. Bachman MC USN
Captain Melville M. Driskell MC USN
Captain Thirl E. Jarrett MC USN

American College of Preventive Medicine

Captain Robert F. Carmody MC USN
Captain Allan S. Chrisman MC USN

From the Note Book

1. Rear Admiral B. W. Hogan, Surgeon General of the Navy, in a special ceremony on December 10, 1956, presented to Rear Admiral T. F. Cooper MC USN, Commanding Officer of the National Naval Medical Center, a silver plaque on behalf of the officers and men of the Karachi, Pakistan Naval Hospital, as a token of appreciation for the cooperation and assistance given to the many doctors and other personnel from Pakistan who have received the excellent training afforded them in the various medical specialties available at the Center. (TIO, BuMed)
2. Plans for the Symposium of the Surgeon General with Senior Medical and Dental officers of the Navy, which will be held at the National Naval Medical Center, Bethesda, Md., January 23 - 25, 1957, are completed. Senior Medical and Dental officers planning to attend will receive copies of the program at an early date. (TIO, BuMed)
3. Manual on Emergency Removal of Patients and First-Aid Fire Fighting in Hospitals. This manual is a joint publication of the American Hospital Association and the National Safety Council. It provides essential information on how to meet emergencies that can occur in hospitals. The author is LT R. McGrath, hospital inspector of the Chicago Fire Prevention Bureau. Specific information is given in text and photographs on how to move patients with various types of injuries, how to fight different kinds of fires, what kind of fire prevention equipment is needed, and where it should be located. Copies of the manual may be obtained from the American Hospital Association, 10 East Division Street, Chicago, Ill.
4. How to Survive on Land and Sea. This manual has found a wide usage in the civilian field of instruction and reference. It should be of interest and value to yachtsmen, airmen, explorers, hunters, the Boy Scouts, and to others interested in activities involving, and dependent upon, natural phenomena whether under familiar or strange conditions, tropical, temperate, or polar. The manual has been revised for the specific purpose of teaching trainees sound and proven methods of surviving on both land and sea. The manual is well and soundly written, plentifully and beautifully illustrated, and covers the subject in an excellent manner. The manual may be obtained from its publisher, the U.S. Naval Institute, Annapolis, Md. (Editor)
5. The Dependents' Medicare Act, passed by the 84th Congress went into effect on December 7, 1956. This legislation promulgates policies and procedures for administering the medical and dental care programs for dependents of active and retired personnel of the uniformed services. Under the Medicare Act, dental care will be provided for dependents of military personnel at Navy dental activities outside the continental United States where

adequate civilian dental facilities are not available. The rendering of routine dental treatment by Navy dental officers for dependents within the continental United States is not authorized except in such remote areas as may be specifically designated by the Secretary of the Navy upon approval of the Secretary of Defense. (TIO, BuMed)

6. Pathology Courses Scheduled at AFIP. Two postgraduate courses in specialized pathology have been scheduled to be conducted by the Armed Forces Institute of Pathology, Walter Reed Army Medical Center, Washington, D.C. The course titles and convening dates are: Pathology of the Oral Lesions, March 18 - 22, 1957; and Ophthalmic Pathology, March 25 - 29, 1957.

Applications from Navy Medical Department officers on active or inactive duty will be forwarded through channels to the Chief of the Bureau of Medicine and Surgery, Department of the Navy, Washington 25, D. C., six weeks prior to the opening date of the course. Priority will be given to officers who are board certified, board qualified, or residents in a specialty related to the course desired. (TIO, BuMed)

7. Captain W.M. Silliphant MC USN, Director, Armed Forces Institute of Pathology, on 15 December participated in the dedication ceremonies of the James Homer Wright Pathology Laboratories and the Tracy Burr Mallory Memorial Library of the Massachusetts General Hospital, Boston, Mass. Captain Silliphant spoke of the present fine relationship between civilian and military medicine, emphasizing particularly the association existing between the civilian hospital, the civilian pathologist, and the Armed Forces Institute of Pathology. (AFIP)

8. The American Society of Clinical Pathologists, in a letter to Rear Admiral B. W. Hogan, Surgeon General of the Navy, commended the staff and instructors of the Naval Medical School, National Naval Medical Center, Bethesda, Md., for their splendid services in connection with the Third Annual Workshop on Clinical Chemistry which they recently conducted in cooperation with that Society at the National Naval Medical Center. (TIO, BuMed)

9. The Medical Department of the Navy will be featured by Navy Management Review, NavExos P-910, in its February 1957 issue. Previous issues have honored the Operating Forces, Bureau of Supplies and Accounts, and the Marine Corps. The Review, which is devoted to better management, is published monthly by the Navy Management Office. It has a normal distribution of more than 25,000 and reaches schools, colleges, U.S. Government agencies, and foreign governments, as well as Navy and Marine Corps readers ashore and afloat. (TIO, BuMed)

10. The American Medical Association at their Tenth Annual Clinical Meeting in Seattle, Wash., cited CIBA Pharmaceutical Products Inc., for service to the medical profession through its presentation of the national television series, Medical Horizons.

AMA President, Dr. Dwight H. Murray, presented the citation before the association's House of Delegates assembled for its annual meeting. The citation approved by the AMA Board of Trustees, was accepted by T.F. Davies Haines, President of CIBA. (D.P.O., CIBA)

11. This report discusses 52 cases of pathologically proved osteoid osteoma, a benign neoplasm of bone characterized in the x-ray by a small tumor nidus that is usually accompanied by a variable amount of contiguous bony sclerosis or the formation of periosteal new bone. (Am. J. Roentgenol., December 1956; R. A. Flaherty, M.D., et al.)

12. Satisfactory renal radiographs can be made during surgery using the radioisotope thulium 170 as an energy source. The technique is useful in aiding the surgeon in search of an elusive renal calculus. (J. Urol., November 1956; D.E. Burke, M.D.)

13. The achievement of good mandibular anesthesia should be an integral part of the equipment of the dental practitioner. This article presents a technique simple in its execution and based on an anatomical concept. J.A.D.A., December 1956; L. Chaikin, D.D.S., B. Rubin, D.D.S.)

14. A review of the methods used and the indications for tubal ligation is presented and discussed in Am. J. Obst. & Gynec., December 1956, W.C. Hearin, Jr., M.D.)

* * * * *

Recent Research Projects

Naval Medical Research Institute, NNMC, Bethesda, Md.

1. Hydrocortisone Suppression of Stress-Induced Adrenal 17-Hydroxycorticosteroid Secretion in Dogs. NM 007 081.22.13, 27 August 1956.
2. The Effect of CO₂ Exposure and Respiratory Acidosis on Adrenal 17-Hydroxycorticosteroid Secretion in Anesthetized Dogs. NM 007 081 .22.12, 27 August 1956.
3. Lecture and Review Series No. 56-5, 13 September 1956.
4. A Rapid Micro-Technique for the Determination of Salivary Hyaluronidase by Streptococcal Decapsulation Test. NM 008 012.04.03, 18 September 1956.

5. Temporal Course of Behavioral Disturbance as a Function of Dose of Eserine or Neostigmine. NM 000 019.01.04, 1 October 1956.

Naval Medical Research Unit No. 3, Cairo, Egypt

1. Comparative Studies on the Laboratory Diagnosis of Brucellosis. NM 007 082.32.01, August 1956.
2. Leptospirosis in Egypt. NM 007 082.32.03, September 1956.
3. A Report on the Finding of Some Natural Hosts of Ophionyssus Natricis (Gervais, 1844) (Acarina: Dermanyssidae). NM 005 050 29.29, October 1956.

Naval Medical Research Unit No. 4, Great Lakes, Ill.

1. Modified and Accelerated Method for the Study of Serum Constituents. NM 005 051.14.18, 2 July 1956.

Naval Medical Research Laboratory, Submarine Base, New London, Conn.

The Shape of the Normal Work Area. NM 002 014.08.10, Report No. 275, 23 July 1956.

Naval School of Aviation Medicine, NAS, Pensacola, Fla.

1. Absolute Thresholds of Perception of Direction of Angular Acceleration. Joint Project Report No. 41, NM 001 110 500, 25 May 1956.
2. An Examination of the Technique of Cupulometry. Joint Project Report No. 42, NM 001 110 500, 30 May 1956.
3. G x Time Flight Patterns in the Naval Training Command - Phase VI: Aerobatic and Gunnery Maneuvers as Flown in Advanced Training Unit 201. Report No. 4, NM 001 100 103, 21 June 1956.
4. Effect of a Noise Environment upon Speaker Intelligibility. Joint Project Report No. 63, NM 001 104 500, 30 June 1956.
5. Final Technical Report. Joint Project Report No. 43, 30 June 1956.
6. Listener Responses to Voice Messages as a Function of Signal-to-Noise Ratio and Experience with Similar Messages. Report No. 64, NM 001 104 500, 1 July 1956.
7. Some Effects of Anesthetizing the Articulators under Conditions of Normal and Delayed Side-Tone. Report No. 65, NM 001 104 500, 15 July 1956.
8. Results of Testing the Dynamic Visual Acuity of 1000 Naval Aviation Cadets. Report No. 10, NM 001 110 501, 10 August 1956.
9. Peak Oxygen Uptake of Trained Healthy Young Men as Determined by a Treadmill Method. Report No. 1, NM 001 105 104, 8 October 1956.

* * * * *

BUMED INSTRUCTION 6320.22

10 December 1956

From: Chief, Bureau of Medicine and Surgery
To: All Naval Activities in Areas Other than the Continental
United States, Alaska, Hawaii, and Puerto Rico
Subj: Dependents' medical care in civilian facilities in areas outside
jurisdiction of the Executive Agent; payment of charges for
Ref: (a) AlNav 57 of 23 Oct 1956
(b) SecNavInst 6320.8, Subj: Dependents' Medical Care
(c) SecNavInst 6320.9, Subj: Fiscal procedures—dependents'
medical care
(d) NavCompt Manual, par. 023304
(e) NavCompt Manual, par. 026002
(f) NavCompt Manual, par. 046011

This instruction provides for payment of charges for medical care of eligible Navy and Marine Corps dependents in civilian facilities in areas other than the continental United States, Alaska, Hawaii, and Puerto Rico, in accordance with the Dependents' Medical Care Act (PL 569, 84th Congress).

* * * * *

BUMED INSTRUCTION 1510.7A

11 December 1956

From: Chief, Bureau of Medicine and Surgery
To: Ships and Stations Having Medical/Dental Personnel
Subj: Outservice training available to enlisted members of the Hospital
Corps
Encl: (1) Sample application and endorsement

This instruction provides information regarding outservice training available to enlisted members of the Hospital Corps. BuMed Instruction 1510.7 is canceled.

* * * * *

The printing of this publication has been approved by the Director of the Bureau of the Budget, 16 May 1955.

* * * * *

DENTAL**SECTION**

Captain Christensen, New Rear Admiral in
Reserve Dental Corps

Captain William H. Christensen of Bremerton, Wash., was recently selected to the grade of Rear Admiral, Dental Corps, U.S. Naval Reserve. Captain Christensen is the third Admiral in the Reserve Dental Corps, the other two being Rear Admiral C. Raymond Wells, Past President of the American Dental Association, and Rear Admiral George Paffenbarger, Head of American Dental Association Research Section at the National Bureau of Standards.

The Reserve Dental Corps is limited to two Rear Admirals, and Captain Christensen was selected to fill the vacancy created by the retirement of Rear Admiral Wells.

* * * * *

"Operation Build-Up"

During the period, 1 October 1956 to 20 November 1956, the following Dental officers have accepted appointments in the Regular Navy Dental Corps:

Edwin R. Black
Earl M. Carson
Lloyd B. Chaisson
Sun Ray Cloud
Robert Cohen
Donald W. Dodds
Joseph R. Evans
Walter J. Gorman
Russel A. Grandich

Stanley C. Hyman
Esthel D. Ikenberry
Harris J. Keene
Wallace D. Loo
Clyde R. Parks
Fiore A. Papera
Harry C. Pebley
Robert Taylor Salandi
Palmer Sharp

Ralph H. Stowel

This brings the total strength of the Dental Corps to a record of 849. The increase is due to a drastic reduction in the number of resignations

from the Dental Corps and an increase in the number of new appointments as shown by the following statistics:

	<u>DC USN Resignations</u>	<u>DC USN Appointments</u>
FY 1954	62	10
FY 1955	28	44
FY 1956	9	112
July-Nov 1956	2	45 (plus 45 applications pending)

* * * * *

New Laboratory for Naval Dental Research

The dental research facilities of the U.S. Naval Training Center, Great Lakes, Ill., have recently been expanded to provide more and larger laboratories for the staff. This will permit the investigators to broaden present studies and to initiate new ones.

Since 1947, the Navy Dental Research Program at Great Lakes has been primarily concerned with studies which take advantage of the large number of controlled recruits. The research has been both basic and applied. In addition to independent research by the staff, they have collaborated with scientists from universities in the Chicago area in fields of mutual interest. These joint endeavors have been productive and have developed continuing research programs in dental caries and diseases of the periodontal structures. In addition, biochemical studies of the parotid secretions and saliva have been undertaken to determine their components and relationship to disease.

The new facilities include sections for bacteriology, biochemistry, histology, and physiology. The present staff includes LCDR H. R. Englander DC USN, LCDR K. C. Hoerman DC USN, I. L. Shklair Ph. D., and four Dental Technicians.

* * * * *

Captain Wyckoff Presents Paper at Professional Science Symposium

Captain R. D. Wyckoff, Dental Corps, U.S. Navy, Head, Standards and Training Sections, Professional Branch, Dental Division, Bureau of Medicine and Surgery, participated in a Symposium on Human Dentition in Forensic Medicine sponsored by the American Association for the Advancement of Science, 29 December 1956, at New York City. Captain Wyckoff presented a paper and lantern slides on The Determination of Personal Identity by Means of the Teeth, a subject in which he has gained considerable knowledge and experience.



MEDICAL RESERVE SECTION

Your Medical Reserve Program Officer Can Help You

Medical Department Reservists having problems that need a ready answer have a reliable source of information close at home - their Medical Reserve Program Officer on full time active duty in each continental Naval District. This officer's primary function is to assist the District Medical Officer in carrying out the various tasks incidental to the mission of the Medical Reserve Program.

Each Medical Reserve Program Officer, his administrative assistant, and clerical personnel have specific duties in the procurement, training, and assignment of Reserve Medical Department personnel on inactive duty.

Inactive Medical Department Reservists desiring information concerning:

1. available billets in drilling units of the Naval Reserve
2. active duty for training
3. correspondence courses and how to apply for them
4. appropriate duty with or without pay
5. commandant's representatives at medical and premedical schools
6. location and convening dates of Navy sponsored Medical Department seminars and symposia
7. eligibility for promotion
8. Navy Department sponsored medical student training programs
9. Naval Medical postgraduate training
10. physical examinations and health records
11. active duty and how to apply for it

should contact, either in person or by mail, the Medical Reserve Program Officer within their Naval District. Here are the names and addresses of these officers and their administrative assistants:

Captain Nelson S. Bigelow MC USN
*CMSW D. H. Lillie USN
First Naval District
495 Summer Street
Boston 10, Mass.

Captain Edmund T. Lentz MC USNR
*CMSW E. E. Francis USN
Third Naval District
90 Church Street
New York 7, N. Y.

Captain Herman S. Zeve MC USNR
 *CMSW S.K. Blanchard USN
 Fourth Naval District
 Naval Base
 Philadelphia 12, Pa.

Captain James H. Hook MC USNR
 *CMSW C.R. Taylor USN
 Fifth Naval District
 U.S. Naval Base
 Norfolk 11, Va.

Captain Samuel E. Hughes, Jr. MC USNR
 *CMSW B.T. Stradley USN
 Sixth Naval District
 U.S. Naval Base
 Charleston, S.C.

Captain Raymond A. Wallace MC USNR
 *CMSW D.T. Bagwell USN
 Eighth Naval District
 U.S. Naval Station
 New Orleans 12, La.

Captain Kenneth V. Schenck MC USNR
 *CMSW W.M. Bullock USN
 *CMSW D.E. Wallace USN
 Ninth Naval District, Bldg. 1
 Great Lakes, Ill.

Captain Oliver B. Jensen MC USNR
 *CMSW O.M. Buchanan USN
 Eleventh Naval District
 937 North Harbor Drive
 San Diego 30, Calif.

Captain Arthur A. Bennett MC USNR
 *CMSW C. Teague USN
 Twelfth Naval District
 Federal Office Building
 San Francisco, Calif.

Captain Herman P. McCrimmon MC USNR
 *CMSW E.R. Diamond USN
 Thirteenth Naval District
 Seattle 99, Wash.

* Chief Medical Service Warrants serving in Reserve supplement at staff headquarters.

* * * * *

New Reserve Training Command Established

A new activity, the U.S. Naval Reserve Training Command, located at Omaha, Neb., was recently established to supervise the training programs of all Naval Reservists except "Air" Reservists.

This new field command is under the military command of the Chief of Naval Operations and the management control of the Chief of Naval Personnel. It will function through the Commandants of the Naval Districts and will handle all phases of the training program including its organization and development.

The staff medical officer is Captain James S. Webb MC USNR whose address is: U.S. Naval Training Command, 30 and Fort Streets, Omaha 11, Neb. (The Naval Reservist)

* * * * *

Active Duty Billets Available

Medical Department officers in certain grades and categories may obtain tours of extended active duty with active duty agreements under the revised voluntary recall program. The program, as revised by BuPers Instruction 1331.4A, provides for the automatic issuance of Active Duty Agreements for terms of 2 - 5 years to all officers voluntarily recalled to active duty. The issuance of Active Duty Agreements is authorized by the Armed Forces Reserve Act of 1952, as amended. Thus, the retention status of an officer serving under the terms of an Agreement is defined by law. A recent amendment to the Armed Forces Reserve Act provides that, after completion of five years' continuous active service, a Reserve officer becomes eligible to receive lump-sum readjustment pay in the amount of one-half of one month's pay for each year of active service performed—if the officer is involuntarily released to inactive duty.

Applications for active duty are desired from officers in the following grades and categories:

Medical and Dental Corps (2105 & 2205) - all grades. Criteria for recall to active duty will be based on relative age, professional qualifications and current service needs.

Medical Service Corps (2305) - grades up to and including lieutenants with date of rank of 1 May 1952, whose specialties are entomology, parasitology, Public Health (Sanitation), physical therapy, occupational therapy and dietetics.

Nurse Corps (2905) - lieutenants and junior.

Applications for extended active duty should be submitted in letter form, addressed to the Chief of Naval Personnel (Attn: Pers B115) and forwarded via the respective district commandant or the Chief of Naval Air Reserve Training, as appropriate. The letter should indicate the date available for active duty and the amount of advance notification desired. Normal processing time for applications is one month; however, if a National Agency Check is needed, processing time is three months. Preference for type and location of duty may also be included and will be given consideration.

(The Naval Reservist)

* * * * *

Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.



PREVENTIVE MEDICINE SECTION

17th Annual Congress on Industrial Health

The Council on Industrial Health of the American Medical Association will hold its 17th Annual Congress on Industrial Health at the Biltmore Hotel in Los Angeles, Calif., February 4 - 6, 1957.

The technical discussions and scientific exhibits are open to all physicians, nurses, industrial hygienists, engineers, and others interested in occupational health.

The following subjects are on the program:

1. Vision in Industry
2. Health Hazards in Agricultural Chemicals
3. New Concepts in the Management of Burns
4. New Developments in Hearing Loss Due to Industrial Noise

* * * * *

Advanced Training Course in Disease Vector and Pest Prevention and Control

The third class of this training course given once each quarter by the U.S. Navy Disease Vector Control Center (formerly Preventive Medicine Unit No. 1), Naval Air Station, Jacksonville, Fla., is scheduled to commence on 18 February 1957. Quotas for this session will be filled with enlisted and civilian personnel only. To be eligible for enrollment, prospective trainees must be either graduates of the Environmental Sanitation Technician Course, Naval Hospital, Oakland, Calif., or personnel with at least a comparable background of experience in the field of insect and rodent control. In addition, all prospective trainees must be either currently connected with, or committed to, active participation in Navy insect and rodent control programs in a supervisory, inspectional, or operational status. Attendance quotas are available by letter request from the Officer-in-Charge, U.S. Navy Disease Vector Control Center, Naval Air Station, Jacksonville, Fla., via the appropriate chain of command. Requests should contain a summary of the training and operational experience background of the

prospective trainee. Due to the limited number of individuals that can be accommodated in each session, quotas will be assigned as requests are received. Requests received in excess of the total quota will be given priority for the next course.

The fourth class is scheduled to commence on 20 May 1957 and will be open to officers and civilians only. Although not directly connected with the Navy pest control certification program, successful completion of this course will provide the technical background required to make local application for certification.

Other details concerning this course of study are included in the original announcement which appeared in the Medical News Letter, Volume 28, Number 2, dated 20 July 1956.

* * * * *

Fly Production in Treated and Untreated Privies

During late March and early April 1954, near Savannah, Ga., 30 privies were treated with dieldrin, 10 privies with DDT, and 20 privies remained untreated. Within 4 weeks, the dieldrin-treated privies showed a sharp increase in housefly production. Average monthly indexes per privy were 193, 254, 1374, 1204, and 1946 specimens for May through September, respectively.

In contrast, average monthly indexes for the same period for DDT-treated and untreated privies were 15, 7, 103, 14, and 36; and 3, 13, 5, 16, and 10 specimens, respectively. Nine privies within a 3- to 4-block area, treated in groups of 3 with BHC, dieldrin, or chlordane, also showed increased housefly production with a low prevalence persisting in 3 adjacent untreated privies. Both aldrin-treated privies and dieldrin-treated privies with only the riser walls or the pit contents sprayed likewise produced increased housefly breeding. A total of 273, 046 flies, representing 123 species, 76 genera, and 36 families, were trapped in all privies.

The low level of housefly production in untreated privies and the increased breeding of this species in privies treated with BHC, chlordane, aldrin, and dieldrin indicated that the use of these chlorinated hydrocarbon insecticides for housefly control in privies should be avoided. (Kilpatrick, J. W., Schoof, H. F., Fly Production in Treated and Untreated Privies: Pub. Health Rep., 71: 787-796, August 1956)

* * * * *

Foresight or Hindsight?

The following article was extracted from the Health Notes of U.S. Navy Preventive Medicine Unit No. 2. Does this situation apply to your activity?

Is your ship one of those that has a "too late" sanitation program? A "too late" program is one that develops only during or after a large outbreak of food poisoning. When food poisoning hits with its spectacular disrupting force, the activity begins a vigorous routine of inspection, scouring, and washing of everything in sight, with lectures on personal hygiene thrown in for extra value. All of these are good and commendable procedures, but the timing is all wrong. The time to institute good sanitation and cleaning routines is now before the outbreak occurs.

One carrier of the enteric pathogen *Salmonella* spread his infection to 97 men aboard a ship as recently as a month ago, involving a total of approximately 291 sick days. This amounts to a lot of money when figured in manhours lost. All could have been prevented by proper food service training, examination of food service personnel, and adequate inspection routines. One man detected and treated can prevent many cases of food poisoning.

Preventive medicine should always be a forethought in the Medical Department whether afloat or ashore. The U.S. Navy Preventive Medicine Units are designed to help you with your problems—just give them a call.

* * * * *

Immersion Hypothermia

(This is the third in a series of articles concerning local cold injury in the Preventive Medicine Section of the Medical News Letter. The clinical aspects and the prevention of frostbite were discussed in the 9 December 1955 issue and immersion foot was discussed in the 2 March 1956 issue.)

Acute general hypothermia resulting from immersion in sea water at temperatures below 68° F. (20° C.) is a serious hazard to survivors of ship or aircraft disasters at sea. The human body when immersed in cold water loses heat from two to four times faster than it does when in air at the same temperature. Therefore, unless the ocean temperature is 70° F. (21° C.) or above, survival following immersion is limited to a few hours in moderately cold water (50° F. - 68° F.) and may be less than half an hour in the frigid seas of the polar regions where water temperatures of from 32° F. (0° C.) down to as low as 28° F. (-2° C.) are common. For example, wartime experience showed that in water at 40° F. (4.5° C.) only 50% of the men survived longer than 1 hour. The degree of cold and the mean survival time bear a hyperbolic relationship such that the product of the two is roughly constant. This does not imply, however, that survival time can be predicted with certainty from water temperature alone. On the contrary, individual factors often determine whether a victim of immersion will survive a longer or shorter time than that predicted. Some of the more

important variables determining survival time are: the amount and kind of clothing worn, the thickness and distribution of the insulating layer of subcutaneous fat, the ratio of body surface to body volume, the extent and duration of the increased heat production resulting from shivering or swimming activity, and the will to survive.

On acute exposure to cold, man like other homeotherms, possesses two important protective mechanisms to safeguard the constancy of his central or "core" temperature: first, peripheral vasoconstriction which shunts warm blood away from the body surface, thereby reducing heat loss, and second, shivering, an involuntary skeletal motor activity which can increase metabolic heat production up to five times the basal level. Diverting blood away from the body periphery increases the temperature gradient from core to surface and reduces the temperature gradient from the body surface to the cold water environment.

If heat loss is thereby brought into line with the increased heat production, thermal balance is re-established and core temperature is stabilized. This situation exists at water temperatures of 68° F. (20° C.) and above. At lower water temperatures, the rate of heat loss exceeds heat production despite vigorous shivering, and core temperature begins to fall. Shivering and also consciousness are progressively depressed as deep body temperature falls below 95° F. (35° C.). From then on, hypothermia proceeds unchecked. Lethal levels of body temperature are reached when the net heat loss from the body (calories lost minus calories produced) is in the range of 650 to 800 kilocalories (Kcal.). A net loss of 800 Kcal. in a 70-kilogram man will result in a rectal temperature of 77° F. (25° C.). Although survival has been reported in cases of accidental hypothermia with rectal temperatures lower than this, such reports are rare.

Death in hypothermia results from cardiac arrest or ventricular fibrillation. Restoring normal cardiac rhythm by electrical and manual means is now a common practice when cardiac arrhythmia or arrest occur in intentional hypothermia employed in cardiac surgery. These methods, however, are not of practical value to medical officers applying treatment to survivors at sea.

The key element in the emergency treatment of immersion hypothermia is immediate and rapid rewarming by immersing the victim in a tub bath maintained at from 110° to 120° F. (43° - 49° C.). Second best to a hot bath is a steaming shower. Hot liquids and brandy by mouth are useful adjuvants, but are not in any sense a substitute for external heat.

The aim of rapid rewarming is to restore body heat without risking the danger of "paradoxical cooling," a phenomenon observed by James Currie in human experiments on hypothermia performed over 150 years ago and confirmed by others many times since. The term denotes a sharp further drop in deep body temperature which occurs after the victim has been removed from the cold water. In this phase, collapse and death are not infrequent, a tragic sequel to what first appeared to be a timely rescue. The explanation

is as follows: During immersion, the surface tissues often referred to as the body "shell" are relatively bloodless and reach a temperature only a few degrees above that of the water. Return of the victim to a warmer air environment induces relaxation of the skin vessels. As warm blood from the core perfuses the intensely chilled tissues of the body shell, blood temperatures approached that of the tissues. The cold venous blood upon returning centrally causes the further fall in deep temperature that was noted by Currie.

Immersing the victim in a hot water bath prevents this occurrence by establishing a steep temperature gradient from outside inward, thus simultaneously heating the surface tissues and preventing heat loss from the perfusing blood. Under these conditions, core temperature begins to rise rapidly and within 15 to 20 minutes has risen to 96° F. or higher with complete restoration of function and comfort. Recovery is usually complete, although mild degrees of local injury of the immersion-foot type have been described.

Victims of prolonged exposure to mild cold experience chronic rather than acute hypothermia. Because there may be additional physiologic disturbances, such as dehydration and decreased plasma volume, the treatment differs from that described for acute hypothermia. Slow rewarming with restoration of the depleted volume of circulating blood has been recommended as the safer procedure. Chronic hypothermia of this type is not usual in immersion and is far more common in accidental cold exposure on land.

Two items of survival equipment designed to prevent immersion hypothermia in survivors of ship or plane disasters at sea are, first, the immersion suit, and second, the inflatable covered life boat. Immersion suits have been designed for aviators flying over cold areas of the ocean. When worn over dry flight clothing, this permits survival in water at 32° F. (0° C.) for a period of 4 hours and possibly longer. A suitable immersion suit for shipboard personnel has not yet been designed. Conditions aboard ship are vastly different from those aboard a plane. Impermeable clothing cannot be worn continuously below decks or by deckhands doing heavy work in cold weather, because evaporation of body moisture is prevented and body heating results. An immersion suit which can be quickly donned before abandoning ship is an alternative solution, but further improvements in the design of such clothing are needed.

The second major item of survival equipment in cold waters is the inflatable covered lifeboat. In 1951, at Argentia Bay in Newfoundland, ten Navy volunteers wearing regulation clothing jumped from the deck of a ship into water at 37° F. (2-1/2 C.), swam to an inflated covered lifeboat, climbed aboard, and remained 5 days on survival rations without evidence of serious chilling. This equipment is now replacing outmoded life floats and life rafts which fail to prevent immersion and its consequences. A technique for the direct transfer of shipboard personnel to lifeboats without an intermediate sojourn in icy water is urgently needed.

Medical officers treating survivors can contribute to the sparse knowledge of immersion hypothermia by noting with care water temperature at the time and place of rescue, the rectal temperature of the survivor, the duration of exposure, and pertinent details regarding clothing and body habitus. (David Minard CDR MC USN, PrevMedDiv, BuMed)

* * * * *

Rodent Control Study in a Forward Area

A recent report received by the Bureau of Medicine and Surgery has recorded another instance of cooperative assistance to an allied nation by U.S. Navy medical facilities. At the request of the government of a foreign country, U.S. Navy personnel were made available to the armed forces of that nation to study the problem of an overwhelming rat population in a forward area and to recommend remedial measures. The rat infestation had caused excessive economic damage and considerable concern as a health hazard. The technical information contained in the report will be extracted as appropriate for inclusion in Chapter 9, "Vector Control," of the Manual of Naval Preventive Medicine.

Through liaison with U.S. Navy Medical Department personnel in the area, the foreign government requested assistance in conducting the survey. A U.S. Naval Reserve officer, inactive status, who as a civilian directs such a program for the U.S. Army, was ordered to active duty to head the study. He was assisted by personnel of the Preventive Medicine Unit and the Naval Medical Research Unit in the area.

Officers of the foreign government were most helpful in furnishing records from their Plague Control Unit files on fleas, rats, and plague; in explaining every part of the normal work program carried on by their Plague Control Unit; and in performing suggested tests for the purpose of determining (1) which baits were preferred by and were most acceptable to the rodents, and (2) the areas from which the bait was taken in greatest abundance by the rodents (i.e., the areas harboring the largest rat populations). The proposed method of area control of rats was discussed and mixing and cage-feeding tests with zinc-phosphide-poisoned bait were performed.

Rats were apparently everywhere and were abundant. Various lines of evidence (paths, tracks, et cetera) supported each other in indicating an extraordinary abundance of rats. This fact was confirmed by catches in livetraps, by the disappearance of baits, and by the observation of numbers of rodents during daylight hours. The area has a history of plague. The last epidemic occurred in 1946 when about 300 died of plague. The frequency of the disease was reduced in the following years until in 1952 only one case occurred. There has been no report of plague since 1952.

Correspondence transmitting the report to the Bureau defined the problem in the area as follows:

'The problem of rat infestation in this forward area is one of long standing, but the situation has become more critical during the past year. The problem as presented by the military personnel of the foreign government consisted of two components: first, a medical problem (plague reservoir); and, second, a monetary and supply problem (spoilage and wastage of food in a critical supply area). Moreover, those who considered the destruction of food to be the foremost issue were of two schools of thought: one group considered that the answer lay in the extermination of the rats, while the other believed that the ratproofing of buildings containing food materials should receive priority. Most observers conceded that plague was not a serious threat because of the measures which had been taken to reduce the rat flea population. In fact, it was demonstrated that the rat flea index in the area had been lowered to such an extent as to make a rat extermination program both feasible and safe in reference to possible outbreaks of plague."

For several years, the Plague Control Unit has worked to control rat fleas in the area with insecticidal dusts. All premises, including ground surfaces, interiors of rat burrows, and corners of rooms, have been dusted frequently—as often as twice in a 3-month period. As a result, the flea index of live-trapped rats has been reduced in each successive year until now it is quite low. For example, in April of this year only 26 fleas were recovered from 287 rats—a flea index of .09, and none of the fleas recovered was Xenopsylla cheopis, the plague vector.

The use of effective rodenticides in preferred food baits was recommended for a practical program to reduce rat populations to a low level in selected areas.

Warfarin was recommended as the safest and most effective rodenticide available. It was pointed out, however, that an "area control" program of rat control can be made effective by the use of either warfarin or zinc phosphide rodenticide. Recommendations were made for safe and effective use of both of these rodenticides. It was suggested that, inasmuch as surplus military stocks of warfarin were nonexistent and there is a surplus of zinc phosphide rodenticide over the local needs of U.S. Forces, some of this surplus might be obtained for control of the rodents in the forward area concerned. It was pointed out also that the basic program of control of rats by baiting and poisoning can be supplemented by the killing of rats in burrows with Cyanogas fumigant dust.

* * * * *

Film on Insect Control

The Rival World, a color motion picture that has won awards at five international film festivals, is now available free of charge for showings by interested organizations. This film describes the never ending struggle for survival between man and insects and, in particular, follows the world-wide insect attack on man's food.

A locust invasion of the Sudan and East Africa is shown together with a dramatic sequence taken from planes during the aerial spraying of flying locust swarms. There are also many startling closeups of insects moving, feeding, destroying, and being destroyed. The Rival World tells how science is devising methods of fighting enemy insects. It points out that man can master this "rival" world only by marshaling his resources and encouraging scientists to improve and increase insect control methods.

The film can be ordered by writing to one of the Shell Oil Film Libraries located as follows: 100 Bush Street, San Francisco, Calif.; P.O. Box 2099, Houston, Texas; 624 South Michigan Avenue, Chicago, Ill.; 50 West 50th Street, New York, N. Y.

* * * * *

POSTAGE AND FEES PAID
NAVY DEPARTMENT

DEPARTMENT OF THE NAVY
U. S. NAVAL MEDICAL SCHOOL
NATIONAL NAVAL MEDICAL CENTER
BETHESDA 14, MARYLAND

OFFICIAL BUSINESS

Permit No. 1048